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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/805,520      | 03/22/2004  | Stavros Tsokonas     | 2003P04174US-01     | 9817             |

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| EXAMINER |
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TRIEU, THAI BA

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| ART UNIT | PAPER NUMBER |
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3748

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/805,520 | <b>Applicant(s)</b><br>TSOKONAS, STAVROS |  |
|                              | <b>Examiner</b><br>Thai-Ba Trieu     | <b>Art Unit</b><br>3748                  |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Objections***

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim, being after claim **21**, should be numbered **22**; and claims **22-29** should be renumbered **23-30**.

Additionally, claims 22, 25-26I, and 28-29, line 1 should be corrected by following:

- [[26.]] **23**. The Fluid flow controller according to claim [[21]] **22**, wherein ...;
- [[25.]] **26**. The system according to claim [[24]] **25**, wherein ...;
- [[26.]] **27**. The system according to claim [[25]] **26**, wherein ...;
- [[28.]] **29**. The method according to claim [[27]] **28**, wherein ...; and
- [[29.]] **30**. The method according to claim [[28]] **29**, wherein ....

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 17 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically,

- In line 2, the recitation of "infinitely variable" renders the claim indefinite, since it is not clear that the plurality of intermediate configurations is considered to be infinitely variable as the valve movement between the two positions. Applicant is required to definite which number is to be infinite variable.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claims 1-10 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Everingham (Patent Number 5,184,773).***

**Regarding claims 1-10, Everingham discloses a fluid flow regulator (10) comprising:**

a body defining a chamber (Not Numbered, Read as the space containing valve 60 and including main bore 32), the body including first, second and third ports (via 16, 14, 18), and the chamber being in fluid communication with the first, second and third ports (via 16, 14, 18), a first fluid flow path (36) passing through the first port (16), through the chamber and through the second port (14),

and a second fluid flow path (36) passing through the first port (16) through the chamber and through the third port (18) (See Figure 1);

a valve (60) including a head (not Numbered) disposed in the chamber, the valve being movable between first and second configurations with respect to the body, the first configuration substantially occluding the second fluid flow path and the second configuration substantially occluding the first fluid flow path (See Column 2, lines 10-33, and Column 3, lines 8-15);

wherein the body comprises first and second seats (40, 42), the first fluid flow path passes through the first seat (40) when the head sealingly engages the second seat in the first configuration of the valve, and the second fluid flow path passes through the second seat (42) when the head sealingly engages the first seat in the second configuration of the valve (See Figure 1);

wherein the first seat (40) is disposed in the chamber and defines a first aperture with a first area, and the second seat (42) is disposed in the chamber and defines a second aperture with a second area (See Figure 1);

wherein the first and second seats (40, 42) are centered about an axis, and the first seat (40) is spaced along the axis with respect to the second seat (42) (See Figure 1);

wherein the valve moves along the axis and the head is disposed along the axis between the first and second seats (40, 42) (See Figure 1);

wherein the valve (60) comprises a stem (62) that is fixed to the head and projects through the body (See Figure 1);

an actuator (64, 86) operably coupled to the stem, the actuator moves the head and stem between the first and second configurations of the valve (See Figure 1, Column 4, lines 20-37);

wherein the actuator comprises an electromagnetic actuator (100) mounted on the body (See Figure 1, Column 4, lines 1-8);

wherein the actuator comprises a resilient element (76) biasing the stem (62) toward the first configuration of the valve (60) (See Figure 1, Column 4, lines 45-55);

wherein the head reciprocates along the axis between the first and second configurations of the valve (See Column 4, lines 56-68, and Column 5, lines 1-11).

**Regarding claims 16-19,** Everingham further discloses the valve being movable to a plurality of intermediate configurations between the first and second configurations of the valve (See Figure 1);

wherein movement of the valve among the plurality of intermediate configurations is infinitely variable;

wherein the plurality of intermediate configurations permits fluid flow along the first and second fluid flow paths;

wherein the first configuration of the valve permits generally unrestricted fluid flow along the first fluid flow path, the second configuration of the valve permits generally unrestricted fluid flow along the second fluid flow path, and the

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plurality of intermediate configurations permits restricted fluid flow along the first and second fluid flow paths (See Figure 1, Column 2, lines 10-68, Columns 3-4, lines 1-68, and Column 5, lines 1-11).

Note that the limitations in claims 16-19 are considered as functional language. Everingham discloses the same structural components as those in the instant invention, which are capable of performing the same functions as being disclosed in claims 16-19.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Everingham (Patent Number 5,184,773), in view of Doherty, Jr. (Patent Number 4,026,464).***

Everingham discloses the invention as recited above; however, Everingham fails to disclose the structural details of the valve head.

Doherty Jr. teaches that it is conventional in the valve art, to utilize the head comprising:

a first portion (60,62) disposed at an axial end (66) of the valve;

a second portion (56,58) disposed along the axis between the first portion (60,62) and the stem (54); and

a central portion (64) disposed along the axis between the first and second portions (60,62; 56,58) (See Figures 2-4);

wherein the central portion (64) has a cross-section area transverse to the axis, and the cross-section area is greater than the first area of the first aperture of the first seat and is greater than the second area of the second aperture of the second seat (See Figures 2-4);

wherein the central portion (64) has a diameter that is greater than a diameter of the first aperture and greater than a diameter of the second aperture (See Figures 2-4);

wherein the first portion (60,62) tapers along the axis to a minimum first portion diameter that is less than the diameter of the first aperture, and the second portion (56,58) tapers along the axis to a minimum second portion diameter that is less than the diameter of the second aperture (See Figures 2-4);

wherein a diameter of the stem (54) is no greater than the minimum second portion diameter (See Figures 2-4).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the structural details of the valve head, as taught by Doherty Jr., to improve the performance efficiency of the Everingham device.

***Claims 20-21 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (Patent Number 4,516,401), in view of Everingham (Patent Number 5,184,773).***



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**Regarding claims 20-21 and 24**, Jackson discloses a fluid flow controller (47) for a turbocharger on an internal combustion engine, the turbocharger (26) boosting density of atmospheric air being supplied to the internal combustion engine (14) , and a wastegate (38) setting a maximum boost level, the fluid flow controller comprising:

a body defining a chamber (within 47), the body including:

an inlet port (via 48) providing fluid communication between the turbocharger (via 23 to 48) and the chamber;

a first outlet port (via port to 46) providing fluid communication between the chamber and the wastegate (38), a first fluid flow path passing air from the turbocharger (26) through the inlet port (via 48), through the chamber and out the first outlet port (via port to 46) to the wastegate (38); and

a second outlet port (via 50, 51) providing fluid communication between the chamber and the atmosphere (at 31), a second fluid flow path passing air from the turbocharger (26) through the inlet port (via 48), through the chamber and out the second outlet port to the atmosphere (at 31) (See Figure 2);

However Jackson fails to disclose the movement configurations of the valve, and an electromagnetic actuator.

Everingham teaches that it is conventional in the valve art, to dispose the valve head (60) in the chamber, the valve being movable with respect to the body between a first configuration, a second configuration, and a plurality of intermediate configurations:

the first configuration substantially occluding the second fluid flow path and permitting generally unrestricted fluid flow along the first fluid flow path;

the second configuration substantially occluding the first fluid flow path and permitting generally unrestricted fluid flow along the second fluid flow path; and

the plurality of intermediate configurations permitting proportional fluid flow along the first and second fluid flow paths;

wherein the body comprises first and second seats (40,42), the first seat (40) defines a first aperture having a first seat diameter, the second seat (42) defines a second aperture having a second seat diameter, the first fluid flow path passes through the first aperture in the first configuration of the valve, and the second fluid flow path passes through the second aperture in the second configuration of the valve (See Figure 1, Column 2, lines 10-68, Columns 3-4, lines 1-68, and Column 5, lines 1-11); and

wherein the actuator comprises an electromagnetic actuator (100) mounted on the body, the electromagnetic actuator reciprocating along the axis between the first and second configurations of the valve (See Figure 1, Column 4, lines 1-8); and a resilient element (76) biasing the stem (62) toward the first configuration of the valve (60) (See Figure 1, Column 4, lines 45-68, and Column 5, lines 1-11).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have disposed the valve head in the chamber and applied the movement configurations of the valve and an electromagnetic actuator, as taught by Everingham, to improve the efficiency of the Jackson turbocharged internal combustion engine.

**Regarding claims 25-27**, Jackson discloses a system of boosting atmospheric air density being supplied to an internal combustion engine, the internal combustion engine (14) including an intake manifold (via 32) providing the air to a combustion cylinder and including an exhaust manifold (24) providing combustion products from the combustion cylinder, the system comprising:

- a turbocharger (26) including a turbine (28) and a compressor (27) connected for rotation with the turbine, the turbine (28) being in fluid communication with the exhaust manifold (24), and the compressor (27) being in fluid communication with the intake manifold (32) (See Figures 1-2);

- a wastegate (38) including a regulating portion (via 23 to 48 and then to 31) and a control portion (via 23 to 48, and then to 46), the regulating portion (via 23 to 48 and then to 31) being in fluid communication between the compressor and the atmosphere, and the control portion being operatively coupled to the regulating portion and receiving a fluid control signal; and

- a fluid flow controller (47) supplying the fluid control signal to the wastegate, the fluid flow controller including:

- a body defining a chamber (space within 47), the body including:

- an inlet port (48) providing fluid communication between the turbocharger (26) and the chamber;

- a first outlet port (via port to 46) providing fluid communication between the chamber and the wastegate (38), a first fluid flow path passing air from the turbocharger (26) through the inlet port (48), through

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the chamber and out the first outlet port (via port to 46) to the wastegate (38); and

a second outlet port (via 50, 51) providing fluid communication between the chamber and the atmosphere (at 31), a second fluid flow path passing air from the turbocharger (26) through the inlet port (48), through the chamber and out the second outlet port (via 50, 51) to the atmosphere; (at 31) (See Figure 2); and

an electronic control unit (55) (See Figures 1-2).

However Jackson fails to disclose the movement configurations of the valve, and an electromagnetic actuator.

Everingham teaches that it is conventional in the valve art, to dispose the valve head (60) in the chamber, the valve being movable with respect to the body between a first configuration, a second configuration, and a plurality of intermediate configurations:

the first configuration substantially occluding the second fluid flow path and permitting generally unrestricted fluid flow along the first fluid flow path;

the second configuration substantially occluding the first fluid flow path and permitting generally unrestricted fluid flow along the second fluid flow path; and

the plurality of intermediate configurations permitting proportional fluid flow along the first and second fluid flow paths (See Figure 1, Column 2, lines 10-68, Columns 3-4, lines 1-68, and Column 5, lines 1-11); and

wherein the actuator comprises an electromagnetic actuator (100) mounted on the body, the electromagnetic actuator reciprocating along the axis

between the first and second configurations of the valve (See Figure 1, Column 4, lines 1-8) (See Figures 1-2, Column 4, lines 45-68, and Column 5, lines 1-11).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have disposed the valve head in the chamber and applied the movement configurations of the valve and an electromagnetic actuator, as taught by Everingham, to improve the efficiency of the Jackson turbocharged internal combustion engine.

**Regarding claims 28-30**, the method as claimed would be inherent during the normal use and operation of the modified Jackson device as disclosed in claims 20-21 and 25 set forth above.

***Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (Patent Number 4,516,401), in view of Everingham (Patent Number 5,184,773), and further in view of Doherty, Jr. (Patent Number 4,026,464).***

The modified Jackson device discloses the invention as recited above; however, fails to disclose the structural details of the valve head.

Doherty Jr. teaches that it is conventional in the valve art, to utilize the head comprising:

a first portion (60,62) disposed at an axial end (66) of the valve;

a second portion (56,58) disposed along the axis between the first portion (60,62) and the stem (54); and

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a central portion (64) disposed along the axis between the first and second portions (60,62; 56,58) (See Figures 2-4);

wherein the central portion (64) has a diameter that is greater than a diameter of the first seat diameter and greater than the second seat (See Figures 2-4); the first portion (60,62) tapers along the axis to a minimum first portion diameter that is less than the first seat diameter, and the second portion (56,58) tapers along the axis to a minimum second portion diameter that is less than the second seat diameter (See Figures 2-4).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the structural details of the valve head, as taught by Doherty Jr., to improve the performance efficiency of the modified Jackson device.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kingsford (US Patent Number 5,575,311) discloses a three way poppet valve apparatus.

- Fornasari (US Patent Number 4,711,270) discloses a thermo-electric valve for channeling refrigerant gases into different tubes in refrigeration devices.

- Ecomard (US Patent Number 4,658,587) discloses a turbocharged internal combustion engine with a system for regulating the supercharged air pressure.

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- Land (US Patent Number 3,329,165) discloses solenoid operated multi-way valves.

- Mojonier et al. (US Patent Number 3,260,504) disclose a seat arrangement for control valves and the like.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB  
March 07, 2005



Thai-Ba Trieu  
Primary Examiner  
Art Unit 3748